



CONTINUING EDUCATION PROGRAM: EDITORIAL

Colorectal cancer imaging: Past, present and future



Colorectal cancer is a major public health concern. This is clearly shown by the currently ongoing national screening program in France and the recent statistics from the French National Cancer Institute reporting 42,152 new cases of colorectal cancer in 2012. Is this the result of a screening test with very poor performances with a sensitivity of 10% for adenomas and the adherence of only one third of solicited patients? [1].

In France, video colonoscopy has a pivotal role in screening and initial diagnosis of colorectal cancer as it permits biopsy of any suspect lesion and resection of the most detected lesions. Virtual colonoscopy, as recommended by the French National Health Authority, has indications that are currently restricted to patients without risk factors, (i.e., with a relatively low pretest probability) [2]. This approach is not the one that is currently in use in the USA where virtual colonoscopy is used for screening with care and reimbursement ensured by health care systems. The role of this technique appears to be underestimated in France at least if the United States are considered as a virtuous model.

Virtual colonoscopy is not indicated in patients with confirmed colon cancers. On the contrary, in confirmed colon cancers computed tomography (CT) colonography with water enema has undoubtedly a major role [2,3]. This simple imaging technique is used to confirm the presence of colon cancer in the entire colon, detect associated colonic and extra-colonic disease and perform local tumour staging [2,3]. These findings have a major place in the decision-making process regarding initial treatment and also surgical strategy.

Regarding rectal cancer, the role of imaging is limited to the assessment of locoregional and distant spread, as well as the immediate and long-term post-surgical evaluation [4] with pelvic magnetic resonance (MR) imaging playing a major role as it has gradually been adopted by clinicians, at least for the initial assessment of rectal tumours. The indication, technique and interpretation, have become standardised at French and European level, except

for the post-radiochemotherapy assessment, which has been introduced more recently and remains largely dependent on individual surgical expertise and local practices [5].

Major changes have also been seen in the assessment of liver metastases [6]. For many years, the detection of liver metastases by standard CT and MR imaging techniques was usually insufficient to meet the demands of surgeons as surgical refinements have more demands on imaging, including a detailed assessment in terms of size, number and location of the hepatic metastases present. The use of relatively invasive techniques, such as CT portography therefore became crucial. Progress in CT scanning has enabled its performance to reach that of CT portography making intra-arterial injection unnecessary [7].

More recently, MR imaging has begun to compete with CT for the detection of liver metastases of colorectal cancer and this examination is now the preoperative gold standard. Although the injection of liver-specific contrast agents was long necessary, progress in this field now makes it possible to consider these products, which are complex to use as a relic of the past [8]. With the use of gadolinium chelates, MR imaging now reaches a sensitivity of about 90% or even more and diffusion-weighted sequences, used in combination with enhanced sequences further improves this sensitivity [9,10]. Finally, it is reasonable to anticipate an improved performance of imaging in the detection of liver metastases of colorectal cancer in the near future [11,12].

In this issue of *Diagnostic & Interventional Imaging*, several groups of authors give an update on current imaging of colorectal cancer. They illustrate as to what extent modern imaging has become a major component for the management of this disease. We would like to say the Alpha and Omega, but for now, the Alpha (i.e., screening) depends too little on imaging. It is currently well admitted that screening remains the weak link for an optimal management. Without seeking to draw hasty and controversial conclusions, which otherwise would be anything but scientific, it is justified and even factual to believe that imaging would improve

currently deficient screening practices if the actual value of virtual colonoscopy was recognised.

Disclosure of interest

The authors declare that they have no conflicts of interest concerning this article.

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